

AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Previously Presented) A biochip cartridge according to claim 6, 24 or 26 wherein said capture binding ligands comprise nucleic acids.

3. (Previously Presented) A biochip cartridge according to claim 6, 24 or 26 wherein said reaction chamber further comprises a gasket to retain fluid in contact with said array.

4. (Cancelled)

5. (Previously Presented) A biochip cartridge according to claim 6, 24, or 26 wherein said reaction chamber further comprises an outlet port.

6. (Currently Amended) A biochip cartridge comprising:

a) a reaction chamber ~~configured to minimize the introduction or retention of air bubbles upon introduction of a sample;~~ said chamber comprising:

i) a substrate comprising an array of electrodes, each comprising:

A) a self-assembled monolayer; and

B) a capture binding ligand;

ii) an inlet port positioned at the bottom of the reaction chamber for the introduction of reagents;

iii) an outlet port positioned at the top of the reaction chamber to minimize the introduction or retention of air bubbles upon introduction of reagents and

b) interconnects to allow the electrical connection of said electrodes to a processor.

7. (Previously Presented) A biochip cartridge according to claim 6, 24, or 26 wherein said array is on one surface of said substrate.

8. (Previously Presented) A biochip cartridge according to claim 6, 24, or 26 wherein two surfaces of said substrate each comprise an array.

9. (Previously Presented) A biochip cartridge according to claim 6, 24, or 26 further comprising a cap comprising at least one storage well comprising assay reagents.

Claims 10-23. Cancelled.

24. (Previously Presented) A biochip cartridge comprising:

a) a reaction chamber comprising:

i) a substrate comprising a printed circuit board comprising an array of electrodes, each electrode comprising:

A) a self-assembled monolayer; and

B) a capture binding ligand;

ii) an inlet port for the introduction of reagents; and

b) interconnects to allow the electrical connection of said electrodes to a processor.

25. (Previously Presented) A biochip cartridge according to claim 6 or 24, wherein said inlet port comprises a valve comprising a semipermeable membrane.

26. (Previously Presented) A biochip cartridge comprising:

a) a reaction chamber comprising:

i) a substrate comprising an array of electrodes, each electrode comprising:

A) a self-assembled monolayer; and

B) a capture binding ligand;

ii) an inlet port for the introduction of reagents, said inlet port comprising a valve including a semipermeable membrane; and

b) interconnects to allow the electrical connection of said electrodes to a processor.

27. (Previously Presented) A biochip cartridge according to claim 26, wherein said semipermeable membrane preferentially allows the escape of gas and retains sample fluid.

28. (Currently Amended) A biochip cartridge according to claim 26, wherein said semipermeable membrane comprises polytetrafluoroethylene~~perforous teflon~~.

29. (Previously Presented) A biochip cartridge according to claim 26, wherein said semipermeable membrane comprises expanded-polytetrafluoroethylene~~Gortex~~TM.

30. (Previously Presented) A biochip cartridge according to claim 6 or 26 wherein said substrate comprises a printed circuit board.

31. (Previously Presented) A biochip cartridge according to claim 6, 24, or 26, wherein said capture binding ligands comprise proteins.

32. (New) A cartridge according to claim 6, wherein the inlet port and the outlet port are separated.
33. (New) A cartridge according to claim 6, wherein the inlet port connects to the outlet port.
34. (New) A cartridge according to claim 9, wherein the cap is removable.
35. (New) A method for filing a reaction chamber comprising:
 - providing a cartridge comprising a reaction chamber, an inlet port positioned at the bottom of the reaction chamber, and an outlet port positioned at the top of the reaction chamber;
 - introducing a fluid into the inlet port positioned at the bottom of the reaction chamber;
 - allowing escape of gas through the outlet port at the top of the reaction chamber, thereby filling the reaction chamber without introducing a bubble into the reaction chamber.